Calendar

Dawn Patrols and Aviation Calendar

If your organization or club is planning a Dawn Patrol or an event you wish to have published, please call the Bureau of Aeronautics at 517-335-9915. **Deadline for the Dawn Patrol issue is February 16, 2001.** Information needed for publication includes: date of event, associated city / airport name, type of event, comments or associated event, sponsoring organization, contact person and telephone number. This information may be faxed to 517-321-6422 Attn: R. Riffel, e-mailed to riffelr@mdot.state.mi.us, or mailed to:

Calendar
Michigan Aviation, Bureau of Aeronautics
2700 E. Airport Service Drive
Lansing, Michigan 48906-2160

JANUARY

26-28 2001 Great Lakes International Aviation Conference. Kellogg Hotel and Conference Center, East Lansing, Michigan. For information, contact Phil Tartalone by phone at 517-335-9880, or by e-mail at gliac@mdot.state.mi.us / aero / gliac.htm. Space is limited.

FEBRUARY

2 Entries for the Year 2001 International Aviation Art Contest must be received by February 2, 2001. The theme for this year's contest is "My Dream to Fly." Competition is open to students age 6-17. For a copy of the contest brochure, which includes rules and an entry form, please write to Michigan Bureau of Aeronautics, Attn: Aviation Art Contest, 2700 E. Airport Service Dr., Lansing, Michigan 48906-2160, or call 517-335-9977. Complete contest details are also available on the Bureau of Aeronautics website at www.mdot.state.mi.us / aero / .

MAY

19 Lansing, Michigan Bureau of Aeronautics Bldg., Capital City Airport. 8a.m.-4p.m. **Eighth Annual Aviation / Aerospace Teacher Workshop**. Registration fee is $25.00 which includes resource materials and lunch. Sponsored by Michigan Department of Transportation, Lake Michigan Chapter of the 99's, Michigan Aeroscience Alliance, U.S. Air Force, Lansing Community College and the Michigan Aviation Hall of Fame. Capacity is limited. To register, or for additional information, please call 517-335-9977, or e-mail to krashent@mdot.state.mi.us.

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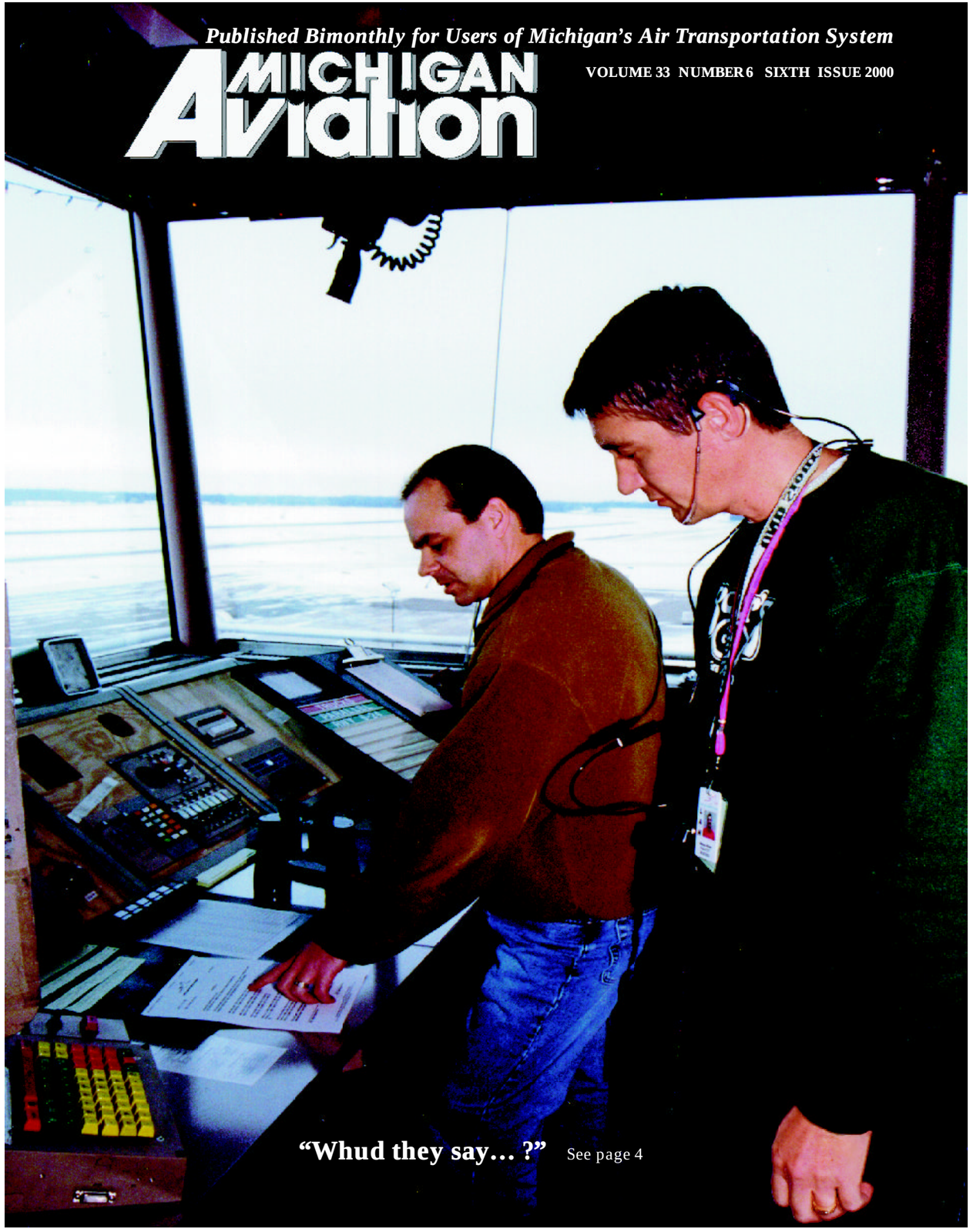


"Whud they say… ?" See page 4

COMMISSION ACTION

The Michigan Aeronautics Commission met in Lansing on November 9, 2000. Among items acted upon was the approval of airport improvement projects across the state. Some projects have federal, state, and local funding, while others are funded from state and / or local sources alone. Commission approval for federally funded projects authorizes state participation, subject to issuance of a federal grant. Federal and state dollars for airport development are primarily from restricted, user generated funds. The primary sources of revenue are aviation fuel and passenger taxes, as well as aircraft registration fees.

Following are approved projects:

GRANTS

DETROIT

Detroit City Airport - an allocation of $555,556 for land acquisition adjacent to runways. The proposed budget consists of $500,000 federal and $55,556 local funds.

Detroit Metropolitan Wayne County Airport - an allocation of $5,133,475 for continuing work on a noise mitigation program. The proposed budget consists of $3,850,106 federal and $1,283,369 local funds.

Willow Run Airport - an allocation of $622,540 for installation of security fencing. The proposed budget consists of $560,286 federal and $62,254 local funds.

GAYLORD

Otsego County Airport - an allocation of $402,000 for land acquisition and terminal ramp expansion. The proposed budget consists of $361,800 federal, $14,350 state, and $25,850 local funds.

MIDLAND

Jack Barstow Airport - an allocation of $55,000 for design work for a future project to rehabilitate Runway 6 / 24. The proposed budget consists of $49,500 federal, $2,750 local, and $2,750 state funds.

SAULT STE. MARIE

Sanderson Field - an allocation of $160,000 to rehabilitate the runway lighting system. The proposed budget consists of $144,000 state and $16,000 local funds.

LOAN

LOWELL

Lowell City Airport - a loan of $70,000 in state funds for the purchase of air easements. The budget will be supplemented with $7,000 in local money.

The Michigan Aeronautics Commission announced its regular meeting schedule for 2001. As a service to the public, all meetings will be broadcast on Michigan State Government TV (MSG-TV). Check your local cable television company for channel and schedule information. Meetings begin at 10:00 a.m., unless otherwise specified. Individuals needing special assistance to attend these meetings may contact the commission office. Further details about agendas, minutes, or meeting locations may be obtained by calling the Bureau of Aeronautics at 517-335-9943.

January	**18**	– Lansing
March	**15**	– Lansing
May	**17**	– Holland
July	**19**	– Houghton-Hancock
September	**19**	– Gaylord[1]
October	**25**	– Detroit[2]
November	**28**	– Lansing

[1] Joint meeting with MAAE
[2] Joint meeting with the State Transportation Commission

Cover Photo: Controllers Marty McDonald and Wesley Wiest, Lansing ATCT. Photo: Tim Burke

Aviation In-formation

The Federal Aviation Administration is asking for help from flight instructors and designated pilot examiners to eliminate runway incursions. In a open letter, FAA Director of Flight Standards, L. Nicholas Lacey, asks instructors and examiners to insure that students, practical test applicants, and pilots undergoing flight reviews have thorough knowledge of airport ground operations. This includes airport signage, lighting, and markings. Included with the letter are ten "best practices," that pilots are encouraged to adopt.

1. Read back all runway crossing and / or hold short instructions.

2. Review airport layout diagrams during preflight planing, before beginning descent for landing, and while taxiing.

3. Be familiar with airport signs, lighting, and markings.

4. Review Notices to Airmen (NOTAMs) for information on runway / taxiway closures and construction.

5. Request progressive taxi instructions when unsure of taxi route.

6. Visually check for traffic before crossing any runway or entering a taxiway.

7. Turn on aircraft lights and rotating beacon or strobe lights while taxiing.

8. After landing, clear the active runway as quickly as possible and obtain taxi instructions before further movement.

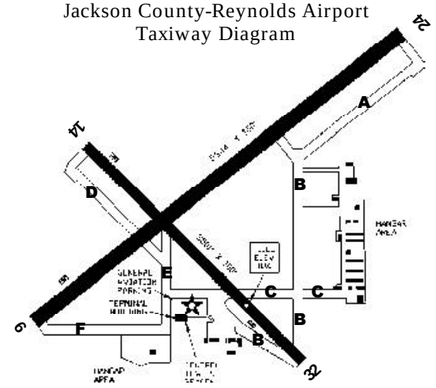
9. Use proper radio phraseology, as described in the *Aeronautical Information Manual*.

10. Write down complex taxi instructions at unfamiliar airports.

Additional resource materials on preventing runway incursions is available from the FAA Office of System Safety at www.asy.faa.gov / safety_products.

Speaking of runway incursions, officials at Jackson County-Reynolds Airport are asking pilots to be especially careful during ground operations. A recently-completed project, which includes the addition of new pavement and the renaming of all taxiways, has precipitated a recent rash of incursions. Pilots are asked to carefully review the new airport diagram and should not hesitate to ask for progressive taxi instructions if necessary.

Jackson County-Reynolds Airport
Taxiway Diagram



Legislation recently passed by the Michigan legislature, and signed into law by the Governor, should help improve the coordination of planning efforts between airports and local planning agencies. House Bills 5036 and 5037, sponsored by Representative Mike Green, amend the Township and County Zoning Acts. Senate Bills 764 and 765, sponsored by Senator Walter H. North, amend the City and Village Zoning Act as well as the Michigan Aeronautics Code. The changes to the Aeronautics Code will require airport managers to file copies of official adopted airport layout plans and airport approach plans with local planning / zoning agencies. Local zoning officials will be required to notify airport managers of changes or proposed changes to local zoning ordinances and take into consideration the airport manager's comments. Zoning officials will also be required to include the plans submitted by an airport manager in the community's master plan. These changes are expected to improve communication and coordination between airports and local zoning agencies, helping to eliminate incompatible land uses around Michigan's public use airports.

Under terms of a new Federal Aviation Administration policy, pilots preparing for first-time flight instructor certification will not have to wait as long to schedule a practical test. Acting on the advice of the General Aviation Coalition, FAA Administrator, Jane Garvey, has announced that the new policy will call for the scheduling of tests within two weeks of a request. If an FAA inspector is not available within the two-week period, the applicant will be referred to a designated flight instructor examiner. A list of examiners authorized to administer flight instructor practical tests is available on the Bureau of Aeronautics website.

Northwest Airlines and its global partner KLM recently flew more than 6,500 pounds of medical supplies donated from Saginaw. A medical clinic will be opened in Mbaukwu, Nigeria, which is located near Saginaw's Sister City, Awka. Northwest and KLM flew the medical supplies for free to make this humanitarian mission possible.

Covenant HealthCare in Saginaw donated the medical supplies earlier this year. Northwest transported the supplies via truck from the City of Saginaw's Public Works Building to its hub at Detroit Metro Airport on Wednesday, November 22nd. From Detroit, Northwest flew the goods to its European hub in Amsterdam. Here the supplies were transferred to KLM and flown to Lagos, Nigeria.

Continued from page 5

cans or understand the language in the same way as American pilots.

In the fatal crash of Korean Air 801 on Guam on August 6, 1997, culture played a pivotal role. Due to the hierarchical nature of the Korean crew, the emphasis was on following orders and not operating as a team, as an American crew. The highly mitigated intra-cockpit conversation revealed that the co-pilot and the flight engineer did not question the captain's navigational skills. Culturally, death is considered more honorable than "loss of face" for questioning a superior officer. In analyzing the extra-cockpit communication, the captain and / or the co-pilot did not request clarification of the controller's statement regarding the inoperative glide slope indicator. This could indicate a cultural difference in training techniques, fear of "loss of face," or a linguistic misunderstanding.

Although this incident involves a culturally homogeneous crew, it's readily apparent that the command structure of this Korean crew would be at odds with an American command structure where teamwork is emphasized. An American captain could be expecting input from the Korean co-pilot and misinterpret his reticence to speak up as inefficiency or ineptitude. Similarly, a Korean captain could become upset if an American co-pilot informed him of some transgression. An assignment of stereotypic behavior to any group must be avoided, but it is important to have an awareness of the beliefs and value systems of a culture. As multinational crews become more common, an awareness of cultural differences that could impact communications and flight safety gains increased significance.

Improved Language Training

An increased effort in a more professional, integrated training of pilots and other aviation personnel in English as well as the cultural aspects of aviation communication may be an acceptable and attainable solution to improve flight safety. English is already being taught and English as a Second Language (ESL) programs are in place in various aviation contexts worldwide. Commercial aviation enterprises, specialized aviation programs, colleges, community colleges and universities, and various language professionals have language-training and -assessment capabilities.

Standardized Assessment

An improved means of language assessment could be a valuable, simple, and efficacious measure for improving aviation communication and fight safety. The flight instructor may not adequately understand exactly what aspect of communication the student pilot finds challenging, or exactly how to improve the student pilot's intelligibility or comprehension. Standardized language assessments may provide a solution, especially at the student pilot / flight instructor level.

Computer Applications

Computer interfaces and other more esoteric means of communication such as lasers and packet voice and data multiplexing techniques are presently being designed for future use to minimize reliance on spoken language. If spoken language is a source for potential miscommunication, then minimizing spoken language, or providing some form of redundancy to augment voice communication may ameliorate the situation.

Pilots, like most people, prefer to use natural voice for communication whether they are speaking to other pilots, to the ATC or even to machines. Voice is faster and more efficient in emergency or non-standard flight operations than any pilot-initiated computer software. Even when computer-integrated visual support and voice-activated software applications become commonplace, there will always be a need for voice and spoken language in aviation communications.

Job Opportunity

Mackinac Island - Airport Aide - two 18-week seasonal positions available. Enjoy your summer working with Mackinac State Historic Parks at our historic museum and park sites in Northern Michigan! Duties include directing pilots after landing, cashiering, preparing daily reports, minor grounds maintenance, and cleaning of airport facilities. Must be 18 or older; positions pay $7.00 / hr, FT, hours / days vary. Low cost dormitory housing at approx. $80 / month! One position starts in April, second position in June. For an application call 231-436-4100, E-mail LINNT@state.mi.us or visit our web page at www.mackinac.com / historicparks . EOE.

2001 Great Lakes International Aviation Conference

Beyond the Headlines

***By Carol Callan**, Operations SPM, Detroit* Flight Standards District Office

For those of you attending (and those who still need to register for) the Great Lakes International Aviation Conference, this is a brief synopsis of just some of the great breakout sessions planned for the weekend! The theme of the conference is "New Technologies," and several sessions are devoted to this theme. These include Alaska's Capstone program, NASA's Small Aircraft Transportation System, Eclipse Aviation, and Williams International. This article will address some of the *other* options that will be available.

We have something available for every taste, whether you are a weekend pilot, an airline pilot, a mechanic, a balloon enthusiast, or any number of other "aviation nuts," either professional or "just for fun." There will be separate segments for flight instructors, students, mechanics, balloon pilots, helicopter pilots and ultra light pilots.

For the flight instructors, Dr. Ruth Sitler, from Kent Sate University, will discuss learning styles, especially as they relate to the differences between how men and women learn. Dr. Sitler conducts extensive research in this area and is a recognized authority on the subject of how women learn to fly. Also present will be Corinne Barringer, a linguist and pilot. Her session addresses the ways to improve communication, both inside the cockpit and with Air Traffic Control. A specialist in accent reduction, she has some helpful hints on how to facilitate communication with persons whose native language is not English, as well as the importance of standard terminology on the radio. Other sessions for instructors include unusual attitude training, airline pilot training, and safety in the flight training environment. To highlight the conference for aviation students and instructors, representatives from several airlines will be available for logbook and résumé reviews, and mock job interviews.

The conference provides a variety of general interest sessions. The staff of the Civil AeroMedical Institute from Oklahoma City will discuss fatigue and spatial disorientation. They vividly demonstrate these concepts in the Vertigon spatial disorientation machine. Mr. Merle Perrine, former head of Alaska search and rescue for the United States Air Force, will discuss how to stay alive and hasten your rescue ". . . if you should happen to find yourself on the ground, off-airport, in your airplane." (How's that for putting "crashed" delicately?!) Merle has lots of stories that illustrate his points. Another great storyteller is Mr. Frank Gattolin. Frank has an extensive background as a pilot, flight instructor, and educator. He recently retired from the National Transportation Safety Board where he worked as an accident investigator. His topic is a "SADD" one. "SADD" stands for "Same Accident, Different Day," and addresses the fact that the same factors are causing accidents year after year. Frank presents some ideas about what we can do to prevent the most common and recurring types of accidents. On a somewhat related topic, Captain Janeen Kochan, a Boeing 767 airline captain will discuss Crew Resource Management. Captain Kochan is currently working on a Ph.D. in Crew Resource Management and has taught the CRM course at her airline for a number of years. This topic, incidentally, is applicable to all pilots, not just those who operate in a multiple crew environment.

The conference is titled "International" because of the involvement of Transport Canada, the Canadian equivalent of the FAA, and the fact that Canadian pilots and mechanics are participating. Representing Transport Canada is Mr. Conrad Hatcher. Conrad will talk about the differences between flying in the United States and flying in Canada. This is a seminar you should attend if you ever plan to fly into Canada. The flight rules there are very similar, but they are not the same. Conrad details those differences very clearly and in an entertaining manner.

On Sunday morning of the conference, in addition to Rod Machado and the door prize drawings, several open forums will be held that address many issues of concern to all pilots. One of the Sunday morning sessions will be a two-hour presentation that is a "don't miss" for all the professional pilots and instrument rated pilots in attendance. The presentation is facilitated by Mr. Bill Benhoff, the Operations Safety Program Manager from the Cleveland Flight Standards District Office. Also participating is Mr. Keith Alves, a controller and procedures specialist from the Cleveland Air Route Traffic Control Center. A tower controller and a flight service specialist will complete the panel. The presentation demonstrates what happens behind the scenes when a pilot files an IFR flight plan from Cleveland to Saginaw. It illustrates to the pilots, all of the coordination that takes place between the various controlling facilities. The presentation helps to explain why the route that you filed is sometimes not what you get when your clearance comes through. According to Mr. Benhoff, it takes almost as long to do the presentation as it would to do the flight because it is so thorough. This session will be a real learning experience for all of us who use the IFR system!

As you can see, the conference is going to be very exciting and the start of a great aviation tradition here in the Great Lakes region. Tell everyone you meet about what a great opportunity this will be. Plan on being in East Lansing on January 26, 27 and 28 for the inaugural Great Lakes International Aviation Conference! I can guarantee you won't be sorry.

For more information contact Phil Tartalone at MDOT Aeronautics by phone at (517) 335-9880, by e-mail at gliac@mdot.state.mi.us , or visit our web site at www.mdot.state.mi.us / aero / gliac.htm . See you at the conference!

Language and Safety Issues in Aviation Communication

by Corinne Barringer

From the early days of flight, aviation communications has presented problems. At first, pilots just shouted at each other, waved their wings, dropped things or buzzed the barn. Now, effective communication is expected between pilot and pilot or between pilot and controller, and involves not only highly complex and technical instumentation but also highly standardized, and equally complex, aviation terminology.

Aviation is an international industry. Most countries have scheduled international flights, and both cockpit crews and controllers are often multinational and multilingual. Even in the US, cockpit crews may represent a multicultural mix, and an increasing number of general aviation pilots speak English as a second or third language. On the ground, aviation support personnel who do not use English as their native language, are working at more airports. Native as well as non-native speakers of English speak the language with different levels of competency. With the multilingual composition of aviation personnel and the challenges of aviation communication in general, the question of effective and efficient aviation communications has developed into a major safety concern.

There is a widespread misconception that English is the international language of aviation. The International Civil Aviation Organization (ICAO) neither officially mandates English as the language of aviation, nor provides proficiency standards. Although English may not be the *official* international language of aviation, it does operate as the *principle* language of aviation communications worldwide. "When a Russian pilot seeks to land at an airfield in Athens, Cairo, or New Delhi, he talks to the control tower in English."

In the United States, the Federal Aviation Administration (FAA) requires pilots to "read, write, speak, and understand the English language," according to Part 61 of the Code of Federal Regulations (Code of Federal Regulations [CFR], 1998). This ability to speak English, however, is not objectively tested: the FAA does not require a standardized test for speaking or understanding English. Instead, the FAA relies on flight instructors and even aviation medical examiners to subjectively assess the student pilot's language competence. The assumption is that if the student pilot is able to adequately fill out the forms, pass the written tests, the medical exam, and the flight test, he/she is complying with Part 61 requirements.

Aviation communication is standardized to increase communication effectiveness. However, learning the correct phraseology takes time, is often intimidating, and can breakdown quickly, especially in non-standard flight situations (which can be almost any flight).

Numerous aviation accidents are attributed to pilot error. Often pilot error is actually a communication error. Communication errors can cause more than just pilot confusion or embarassment. They frequently result in surface incidents, runway incursions or serious midair accidents.

An analysis of voice communications between ATC and pilots revealed that 40% of controller communications and 59% pilot communications contained at least one communication error. Effective communications between pilot and ATC may not occur even when both share the same information and the same language.

Analysis of aviation communications reveals that certain linguistic features contribute to failed communication. In English, the phrase "go ahead" can have several meanings. If the ATC says, "Go ahead." to the pilot, the ATC could be referring to the pilot's speech, as in "Proceed to talk." ("Go ahead, it's your turn to talk."), or the pilot's flying, as in "Proceed down the taxiway." ("Go ahead, drive the aircraft down the taxiway.").

Another commonly used phrase, "I've got it," could be interpreted variously as "I see the traffic," or, "I've got the controls." In the first interpretation, "I see the traffic," the pilot has identified another aircraft in flight. In the other interpretation, "I've got the controls," the pilot in command (PIC) may have understood the first officer (F/O) to indicate that he had control of the aircraft and may have physically released the aircraft's controls to allow the F/O to take over. This is acceptable if the F/O is indeed ready to take the controls. The phrase, "I've got it" is not standard and the pilot did not use an identifier.

Message length, speech rate, pronunciation, and intonation are important for communication success. If the ATC is speaking fast, which is common, a pilot, native speaker or not, is going to have difficulty remembering the clearances. Research has indicated that message length has a direct correlation with short-term memory. More than three aviation topics addressed in a single message, with both pilot and controller native speakers, increases the probability of misunderstanding. The chance for misunderstanding could increase when one or both individuals are non-native speakers.

When the intonation or pronunciation is altered, comprehension decreases. An FAA examiner recounts the story of an Australian pilot asking for vectoring and clearances to "housetin." The pilot was over Texas and looking for Houston. The pilot was speaking English, but with an Australian dialect, and the controllers were uncertain whether the pilot was looking for Houston or Austin.

Some communication errors involve complacency. The pilot or ATC hears what he/she expects to hear. The ATC hears the pilot say, "Descend to 5,000," because that is what he expects to hear, even though the pilot has just said, "Descend to 3,000." If the pilot or the ATC is a non-native speaker, the problem is compounded. If the non-native speaker is the pilot, his accent may interfere with the controller's understanding. The controller expects to hear a certain response, and although he may not quite understand everything the pilot said, it may be close enough for the ATC to conclude that the message was received. Alternatively, if the pilot's language proficiency is limited, he may respond with a partial or a single word readback, as in "Roger" which can lead to suppositions on the controller's part. The controller may think the pilot understands the clearance when he does not.

Improper Terminology

The use of standardized terminology in aviation communication facilitates comprehension and aircrew performance. The more standardized the communication techniques, the fewer errors and misunderstandings between PIC and F/O. When pilots and controllers deviate from standardized phraseology, they tend to use idiomatic conversational English, or other jargon or slang phrases from different venues such as citizens band (CB) radio. Phrases such as "O.K.," "Yep," "10-4," "Okey dokey," have been used to mean "Affirmative" or "Yes." These may seem innocuous, but in a field as unforgiving as aviation, mistakes have serious consequences. Does "Okey Dokey" mean that the pilot understood the directions, and he will follow them? Which directions did he hear, and which aircraft was responding to those directions? If "Okey dokey" is unclear for native speakers, it may be totally meaningless for non-native speakers.

On January 25, 1990, an Avianca Boeing 707 ran out of fuel and crashed while en route to John F. Kennedy International Airport. There were 73 fatalities. The PIC and F/O were both native Spanish-speakers with the F/O translating English. The PIC told the F/O to inform the controller that there was an emergency. The F/O radioed that they were "running out of fuel," a normal conversational English phrase. He never used the term "emergency." The ATC did not understand the critical urgency of the situation, and the aircraft crashed. Had the F/O used the term "emergency," a standardized term, the flight may have ended differently. Foreign pilots may be highly competent at standardized communication in their own language, but not necessarily in English.

Unfamiliar Terminology

Unfamiliar terminology also presents significant problems in communication. For non-native speakers, this could indicate inadequate vocabulary development, or misunderstanding idioms and/or jargon. If the pilot and ATC are communicating in standard aviation phraseology, then theoretically there should be little difficulty. If the ATC uses non-standard phrases, possibly because this is a non-standard situation, and the pilot's English is not adequate to the task, this becomes a safety issue.

A flight instructor was using and identifying a cotton gin to teach his student pilot visual ground references. The confused student did not understand why he was told to "cut engine" when they were not near an airport. Unfamilar with the term "cotton gin," and equally unfamiliar with the structure (and how many American pilots would recognize a cotton gin if they flew over it?), the student pilot interpreted the phrase as one that made sense in the context of flight instruction: "cut engine."

Cultural Impact on Communications

Communication can breakdown across cultural lines as well as linguistic. Bilingual or multilingual pilots may have been taught to speak and understand Standard American English, but they may not respond as Ameri-

Continued on page 6